Vol. IX. No. 1. January 15, 1912.

THE

PSYCHOLOGICAL BULLETIN

GENERAL REVIEWS AND SUMMARIES

PSYCHOLOGICAL PROGRESS IN 1911

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The year just closed presented a variety of events and results which show a steadily increasing vitality in the science of psychology. Wearying of "the patient search and vigil long" in the quest of the true object of their ceaseless inquiries, some psychologists would have us modify our intentions by such definition as will make the object unquestionably clear and certain. The term "consciousness" seems to face the dangers which years ago routed the terms "soul" and "mind" from our vocabulary. The philosophers, too, seem so to weight their current problems in terms of realism, humanism and "Bergsonianism," as to let the metaphysical gravitation of consciousness move it out of the system of the empirical relations which are of right preëmpted by and for the scientific methods of psychology. The focalized expression of this tendency appeared among American psychologists by whom the use and meaning of the terms was especially discussed at the Minneapolis meeting in 1910. In its place it is proposed to substitute the term "behavior," as is done, for example, by Pillsbury (15) in his definition of psychology as "the science of human behavior." This is proposed in the interest of the permanent objectivity of the facts of the science. The argument of Singer (20) is positive that "consciousness is not something inferred from behavior, it is behavior." The dangers of an ambiguity in speech, of the elimination of all introspection and of the study of the psychology of animals, and the narrowing of experience to a possible single mode of movement do not seem to be effective as checks in the adoption of the sub-

stitute. Tawney (21) is more temperate, but not less deviating, in his expression of a pedagogically felt need for a reconstructed science that will develop without serious break into the correlated disciplines. While "it is all very well to write psychology for the sake of psychology, and to work steadily under the lead of facts, . . . we need a psychology of human conduct to supplant the psychology of consciousness."

In his criticism of psychology as experimental, Kostyleff (7), upbraids it as lacking system in its methods and objects of research, presenting too much variety and planlessness in its investigations, and exhibiting individuals who follow masters rather than attack fundamental problems. While its measurements and graphs and laws may be interesting, they cannot become explanations, but remain only questions. This criticism entirely forgets that scientific experimentation is fruitful because the analysis of any particular phenomenon is never carried to completion. Progress is possible only on condition that this is not done. Complete treatment, in requiring unending time and effort, would preclude all attempt at hypothesis and explanation. Braunhausen (2) offers as a refutation of this criticism a brief and richly compacted review of the work and results of modern psychology.

The first answer to these and similar doubts as to the worth of psychology is, however, to be found in the revision of Ladd's *Elements of Physiological Psychology*, the appearance of which is the most interesting single event of the year (8). The first edition of this classic appeared in 1887, and passed through ten reprintings. That the work is, after nearly a quarter of a century, subject to such a wide revision as to incorporate the neurone theory, the facts of the evolution of the brain, and the latest experimental data without losing its original identity, even as to the number of chapters and pages, is probably the best evidence our literature has given us of the inner vitality of psychological methods, and the clear perspective of the safe direction its researches have been taking. It presents our best survey of the varied material in the organizing and reorganizing fund of knowledge which psychology can now claim as its own. A comparison of the revised edition with the original shows exactly the advancement in the experimental and objective character of this knowledge, at once an answer to the critic and an indication of the progress for which he should be inquiring. From these points of view this work becomes historically more interesting than the famous *Grundzüge*, the completion of

whose sixth edition was chronicled one year ago. The appearance of second editions of the manuals by Myers (14) and by Toulouse and Piéron (23) is further indication of the sufficiency of exact methods and a welcome sign of the seriousness in English and French experimental psychology.

The spread of experimental technique over the field of the thought processes was the most considerable and daring advance made in the first decade of this century. Now a similar attempt at controlled introspection is passing over into the field of voluntary phenomena, and happily, with a fair degree of assurance that the results are reliable. Continuing the work begun by Ach and by Bovet, and reaching results partly agreeing and partly disagreeing with theirs, Michotte and Prüm (13) used reaction methods in securing their contribution to the descriptive psychology of will. They aimed to bring out in relief the problems of motivation and determination. In the final stage of the latter, the observers found the phenomenon of choice to be a consciousness of doing, but not as a content alongside of other contents. Now that the initial difficulties, interposed by logic, ethics, and the earlier conclusions of psychology precluding these fields, have been overcome, it is hoped that future progress will not be hindered by the controversial side-issues of misunderstanding.

The renewed efforts of recent years to make the technique of the science definitive and applicable in the measurement of individuals, both in particular processes and as a whole, have been fortunately advancing towards at least working, if not assured results. The excellent contribution of Whipple last year is now followed by the report of the special Committee of the American Psychological Association (18) and the spreading interest in trying out the Binet-Simon scale for measuring intelligence and its development. As early as 1896 the American Psychological Association made its first effort to standardize mental tests, which did not get beyond the statement of the general problem. The work of the permanent Committee of 1906, which is ripening slowly, becomes peculiarly serviceable by bringing the different methods of procedure together in such a way as to be mutually corrective. A fresh and potent incentive is now at hand for re-experimentation by psychologists in these newly charted fields. As if by common consent, the other line of coöperative work is being done in the sudden spread of interest in the applicability and validity of the scale of intelligence. Meumann (12), in specifying the four aims to be realized by these tests, viz. the psychiatric, the

tests to determine the limits of abnormality and the typical intelligence disorders in childhood, tests to analyze the normal adult, and also normal children, raises as a new problem the question, to what extent may an individual (especially a child) deviate mentally from the normal average for a given age and still be normal? Bobertag (1) has reviewed the work done in 1910. Binet and Simon (3) have extended and simplified their 1908 order of tests so as to include the fifteen-year-olds and over, and to measure each year (except the fourth, which has four questions), with five tests. Goddard (4), in trying the tests on a homogeneous group of two thousand normal children, reaches the conclusion that we have now "a mathematical demonstration of the accuracy of the tests," particularly for the ages of five to twelve years. In the "Symposium on the Binet Tests" in the *Psychological Clinic* (16), Terman presents the results obtained from four hundred non-selected children. The organization of committees and institutes in Europe to promote further investigations, mentioned below, indicates an unusually serious belief in the value of standardized mental tests.

The phenomena of dreams have long been a region of opinion and superstition. One may now ask, with some hope of an affirmative answer, whether this field shall finally yield to sound theory. The continued development of the method of psychoanalysis and the extension of Freud's theories to the explanation of traits recorded in biography is a matter of importance in spite of its lack of general acceptance. Vold (24) was probably the first to apply the methods of careful control and comparison to dreams, this strange material of experience which seems to be beyond all control. In attempting to determine dreams experimentally, by tightly placed bands chiefly on the lower limbs, he found for example, in tests on nineteen subjects, experimental dreams contained two and a half times the elements recallable in ordinary dreams. It also appears that motor ideas are most frequently aroused in controlled dreams, ideas of pressure and temperature only slightly so. Hollingsworth's observations on the transition state between waking and sleeping may lead to a further inquiry into the psychology of dreams (6).

From the abundance of other expressions of tendencies and advances, mention may be made of the following fruits of the year. Continuing the American pedagogical practice of demonstrating a position by constructing a text-book, Yerkes (25) has issued a clear call to the science to hark back to the importance of introspection and to a recognition of psychical causation. His exhibition of the gen-

eralization of the science (part IV.) is a striking presentation of the extensive scientific claims it now possesses. In the effort to use the projection method for studying imagery by Martin (11), and the demonstration of the meaning and extent of psychography by Margis (9, 10), the range of possible improvement in methods is indicated. A new meaning of comparative psychology is given in the suggestive study by Hamilton (5), whose subjects were eleven humans, five monkeys, sixteen dogs, five cats, and one horse. The reprinting of the papers by Thorndike (22), who first made the experimental attack on the problems of animal psychology over a decade ago, affords an opportunity to note the general soundness of his interpretations, as well as a basis for estimating the progress in technique and theory which may have been made in the meantime in this branch of the science.

1909		1910	
No. of Titles	Rubric	No of Titles	Rubric
739	Genetic, individual and social psychology.	712	Genetic, individual and social psychology.
512	Philosophical implications of psychology.	587	Sleep, trance and pathology.
512	Sleep, trance and pathology.	471	Sensation.
358	Sensation.	417	Philosophical implications of psychology.
322	General.	292	Anatomy and physiology of the nervous system.
277	Anatomy and physiology of the nervous system.	248	General.
128	Conation and movement.	171	Conation and movement.
122	Cognition.	169	Cognition.
69	Conditions and relations of consciousness.	86	Conditions and relations of consciousness.
28	Affection.	33	Affection.
3,067		3,186	

As a helpful sign of the high level of activity in psychology one can read the indications in the record of publications to be found in the *Psychological Index for 1910* (17). That the science is "established" beyond all peradventure may be gathered from the striking steadiness of its literary output. The growth of the *Index* is approaching the limits which may result, as announced, in reducing the space given to philosophy. The total entries for 1910 were 3,186, by two thousand five hundred and fourteen authors. This total is over ten per cent. less than that of 1908, but four per cent. increase over that of 1909. Last year seven topics showed an increase, and three a decrease, in

the number of contributions. The largest gain is one hundred and thirteen on sensation, the greatest loss is ninety-five on the conditions and relations of consciousness. The slight displacement in rank shown by sleep, trance and pathology, the philosophical implications, general, and the anatomy and physiology of the nervous system, do not effect the general significance of the table above. The fact that the field of genetic, individual and social psychology has steadily held the first place during the past four years should be highly instructive to one seeking for indications of the positive directions being taken by psychological inquiry.

A more striking illustration of the enormous range of activity in the science may be found in the year's history of the PSYCHOLOGICAL BULLETIN. In 1911 this journal inaugurated a new and helpful plan for reporting the literature of psychology. In addition to its reports of the proceedings of four psychological congresses or annual meetings, and the special reviews, eleven issues were given to general reviews and summaries of the work of the year 1910 (including some reference to the results of 1909 and 1911). These were grouped under forty-seven topics; and while they aggregated over seven hundred references, they numbered less than one fourth the number recorded in the *Index* for the same year!

The ability of psychology to maintain its scientific and educational interests in America, at least, is shown in the annual record of the bestowal of the degree of Doctor of Philosophy by American universities which is being kept by *Science* (19). Psychology is one of the seventeen natural and exact sciences, in which two hundred and thirty-nine degrees, and one of the thirty-four subjects, in which four hundred and thirty-seven degrees were conferred in 1911. Twenty-three degrees, a number greatly above the average (15.8) for this science since 1898, were conferred upon candidates presenting dissertations on psychological subjects. Twenty of these were conferred by four universities, Clark (seven), Chicago (six), Columbia (four), and Pennsylvania (three). Psychology also continues to rank fourth among the twenty sciences, and seventh among the thirty-seven subjects which are credited with the doctorate of American universities. The same record shows that education, as a subject, was credited in 1911 with twenty-three degrees, and calls attention to the impossibility of picking out the psychology that may have crept into education, and vice versa.

During the year the channels of publication in psychology have shown interesting development. The activities of investigators in

all the clearly differentiated branches of the science are increasing rapidly. We have come to the happy state where each aspect is having its own periodical. The beginning of the year saw the appearance of *The Journal of Animal Behavior*, under the editorial direction of R. M. Yerkes and an editorial board, and its series of *The Behavior Monographs*, edited by J. B. Watson. Another sign of rapidly extending investigations is found in the two additional outlets for extensive material opened in 1911 in the *Beihefte* of the *Zeitschrift für angewandte Psychologie und psychologische Sammelforschung*, now in its fifth volume, and in the series of monograph supplements to the *British Journal of Psychology*, in its third volume. W. Specht is the editor of the new *Zeitschrift für Patho-psychologie* appearing in Munich. The new *Zeitschrift für pädagogische Psychologie und experimentelle Pädagogik*, under the editorial care of Meumann and Scheibner, is a combination to continue the interest in the fields hitherto cultivated by the older *Zeitschrift für pädagogische Psychologie* (since 1899) and the younger *Zeitschrift für experimentelle Pädagogik* (since 1905). The first volume of the institute for experimental pedagogy and psychology of the Teachers' Association of Leipzig, the *Pädagogisch-Psychologische Arbeiten*, aims to bring the achievements of experimental psychology to the acquaintance of students of education. That exact methods of inquiry in this field are beginning to receive some attention in England is shown by the new *Journal of Experimental Pedagogy and Training College Record*, edited by J. A. Green, of Sheffield University.

The associational interests of psychology continued to exercise the diverse activities of former years. The stated meetings of national, sectional and local organizations offered the usual opportunities for expressions in general, experimental, educational, comparative, and abnormal psychology. Besides these efforts, several events of unequal significance for progress may be chronicled. The Fourth International Congress of Philosophy, held at Bologna in April, devoted one of its eight sections to philosophy—an indication that the divorce of the two subjects remains to be made final. The American Psycho-analytic Association was organized at Baltimore, in May, under the presidency of J. J. Putnam, and in affiliation with the International Psycho-analytic Association. Renewed efforts to bring together the results of scientific child study led to the organization of the First International Congress of Pedology held at Brussels, in August, under the presidency of M. C. Schuyten. In the following month was held the international *Verein* for medical psychology and psychotherapy in Munich.

The year also brought forth a number of instances of organized efforts to further the movement of the application of psychology, particularly to education. In Berlin, teachers and psychologists united in the organization of a *Verein für pädagogisch-psychologische Statistik*, which aims to keep foremost the use of methods of investigation of a scientific character. Teachers are also to be immediate beneficiaries of psychology in the Institute for Pedagogical Psychology established in Munich under Fischer and in the Pedagogical Institute at the University of Tübingen under Deuchler, while in Breslau special study of intelligence tests is being carried on by the new committee organized for work in educational psychology. The more permanent establishment of the science and its further extension and application are evidenced in the gift of one hundred and fifty thousand marks by Professor Hans Meyer to the University of Leipzig for an institute of experimental psychology, in the fund of one hundred and twenty thousand roubles by an anonymous donor for the building and equipment of a psychological institute at the University of Moscow, and in the Gatzert Foundation for child welfare in the University and State of Washington, to direct which a psychologist, S. Smith, has been appointed. The varied services of "applied" psychology found a new direction in the appointment of a psychologist, L. R. Geissler, for special research in the physical laboratory of the National Electric Lamp Association, in Cleveland.

The deaths of Alfred Binet, of France, Sir Francis Galton and John Hughlings Jackson, of England, W. A. Nagel, of Germany, Angelo Mosso, of Italy, and Henry P. Bowditch, of America, remind us of the distinctive services in specializing problems and devising techniques for their solution which may come from physiologists and neurologists as well as from psychologists. Binet was director of the laboratory of physiological psychology at the University of Paris, founder of the *L'année psychologique*, and a special student of child psychology, whose collaboration in the tests of intelligence, familiarly known by his name, promises to be directive of numerous inquiries in the years to come. Galton's wide range of scientific interest gave to psychology a new era by his statistical methods and his approach to the problems of special traits and mental heredity. Each of the four physiologists left his impress at some point in psychology. Jackson nearly a generation ago worked out the suggestion of the widely serviceable generalization of evolutionary levels in brain function, by showing wherein higher functions become specific and the structures supporting them become more

complex. Nagel's interest as a physiologist in psychology became fixed in his contribution to the advancement of the theory of color-blindness and his devices of test-cards and apparatus for light-transmission. Mosso invented the ergograph, and largely fashioned the important field of fatigue. Bowditch advanced our knowledge of the physiology of vision and the knee-jerk, and filled with permanent suggestiveness his anthropometric work on the growth of children.

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HISTORICAL CONTRIBUTIONS

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The year is signalized by two important histories of psychology. Of these Dessoir's (3) has the wider sweep, attempting to give, from direct sources, the fundamental lines of ancient and modern thought, and especially to present the advance made in the development of this discipline. The three roots of psychology are the religious,—the phenomena of dreams and death giving us occult psychosophy; the individual,—with the localization of the soul in the heart and midriff; the social,—with its linguistic and poetic implications. These three roots may be traced through classical antiquity, the temperamental school of Galen, the introspective Alexandrians to the Renaissance itself. The latter's psychognosis splits into the genetic-individual psychology of quietism and the temperamental-racial which began with Gracian and ended with Chamfort. Here the French studies are made responsible for a double development of Humanism: on the one hand arising a decadent dissection of character by Rousseau, on the other the more healthy self-portraiture of Goethe, Maine de Biran, Maurice de Guérin. This extremely interesting study of the psychology of comparative literature is succeeded by another on the ancient conception of the life of the soul. This includes the background of folk-lore, and the esoteric Orphic-Pythagorean cult as to the soul's two-fold relation to the spirit world and to physical nature. Next come the Pre-Socratics proper, Platonism as a combination of the mystical and mechanical, the Aristotelian genetic-rational views, the variants among the Epicureans, Stoics and Neo-

platonists, and the neglected opinions of the Patristics. In the Middle Ages psychology becomes a history of the activities of the soul under Roman-Germanic Christianity. After the brief career of the Arabian physiological psychology, high Scholasticism is overthrown by new empirical and mystical doctrines from Roger Bacon to Tauler. With the founding of constructive psychology under Vives and Lord Bacon there arises the connection with mathematics, utilized by Descartes, despite his adoption of the Augustinian ego, by Hobbes, and even by Malebranche in his heuristic principle of parallelism, but less successfully by Spinoza who leaves the connection between psychology and epistemology to be made clearer by Locke, by Hartley and his associationism, and by the analytics Hume, Reid, and Tetens. With Leibniz and Wolf begins the German faculty psychology. This, being criticized by Kant, eventuates in the self-determining systems of Fichte and Schelling, the vague spiritism of Hegel, and the animism of Herder. With the more exact methods of Schubert, Carus and Burdach come the opponents of the dialectical school Fries and Beneke, the eclectics Tiedemann, Reinhold and Scheidler. At this point historic proportion is lost. Ten pages are devoted to Herbart and his school while less than two are granted to the French founders Condillac, Cabanis, and Destutt de Tracy; there is an interesting paragraph on Gall but nothing on Spurzheim; in the rubric, but not in the text, Hazard and James are put among the English psychologists, and, in conclusion, but twelve pages are devoted to German psychology since 1850. The work is, however, notable for tracing the golden thread of continuity, and especially interesting in its account of the primitives in Hellenism and the Renaissance.

Klemm (4) presents a history of the problems of psychology much as Janet and Séailles have done in philosophy. Besides tracing the development of the past he attempts to define the limits of modern psychology as a separate discipline, from the point of view of a disciple of Wundt. The work ranges from the beginnings of introspection in the occult sciences to present applications in pedagogy, jurisprudence and psychiatry. Under the heads of metaphysical psychology we have spiritualism proper, and materialism in its atomic, mechanical and psychophysical varieties, and under empirical psychology the associational, comparative and experimental varieties. This first division on the common aims of psychology is followed by a second on the development of fundamental concepts such as consciousness, the contents of consciousness, psychological method,

and psychological measurements as presented by Weber, Fechner and G. E. Müller. The last division offers a highly interesting history of the most important theories regarding not only the general problems of sensations of sight and hearing, but also special problems of space, such as Müller's nativistic, Helmholtz's empirical, and Herbart's genetic hypotheses. The thoroughness of Klemm's work is evidenced in the last chapter with its theories of feeling subdivided into the phenomenal, psycho-mechanical, physiological, and psychophysical; and its theories of the will into the intellectual, absolutistic, heterogenetic, and emotional. We note, in conclusion, the names of nine American psychologists from Edwards to James.

Boutroux (1) in his beautifully written monograph, makes James an opponent both of the actualists and the substantialists, since the former are too atomistic, the latter too remote from reality. Introspection shows the reality to be rather the stream of consciousness. Here psychophysical parallelism has a new meaning because the nerve centers are to be considered partially spontaneous and intelligent. In this way the principles of science tend to become transfigured by the contact of physiology, their materialism being sublimated, their mechanism animated, their determinism rendered more supple.

Cushman (2) continues his treatment of last year's volume, commenting succinctly on the psychology of the modern philosophers from Hobbes to Herbart. To his chapter on the Enlightenment he adds, without comment, one group of associationist psychologists from Peter to Thomas Brown, and another of "associationist psychologists and related philosophers" from Kruger to Sulzer.

Lévy-Bruhl offers an appreciation of Cournot on the occasion of a reprint of his *Traité de l'enchainement des Idées fondamentales*, which has remained almost unknown because of the original opposition of Comte and Renouvier.

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MIND AND BODY

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Noteworthy in the discussion of this problem during the year is a searching, but, in result, considerably diverse attempt to define mind or consciousness. Oesterreich (**28**), resting his case on self-observation, which, according to him, discovers a not-further-reducible "I-moment," argues that the "I" is not a complex of phenomena which singly do not contain it but is a phenomenon of a special kind. On the contrary, Gross (**17**), while dissatisfied with the bundle theory of consciousness, agrees with Hume that we do not actually find the self as object. Nevertheless he holds that our introspection is accompanied by the conviction that there was something-more-than-that present in the feeling-willing-judging experience than we actually have in the object of introspection. This "more-than" we express metaphorically as "center," "focus," etc. Martius (**24**) rejects the substance view of mind, which Schwartzkopf (**29**) on the contrary, and by appealing to introspection, accepts. The latter, however, attempts to substitute a living substantiality for the static substantiality of older thought. Schwartzkopf argues that I am not the mere sum of my life experiences; they belong to me as "mine." Sichler (**31**), on the contrary, maintains, with Wundt, the conception of the soul as pure activity, arguing that the conception of the soul as doer of its deeds or carrier of its qualities is due to the transference of the "thing" concept to the soul. "It is asked that the act be referred back to an acting subject. But the act itself is primary. The division of act and acting subject is a play with concepts of reflection, which we first distinguish as subject and object and then proceed to separate into independent realities." He holds likewise that the introspected consciousness has not the constancy requisite for the concept of substantiality. Singer (**32**), too, rejects the substance view, explaining it as due to the satisfaction of treating any complex thing as an additive result. Consciousness is not something to be inferred from behavior ("an eject forever veiled and hidden in a land beyond experience"); it is behavior. Or, more accurately, our belief in consciousness is an expectation of probable behavior based on an observation of actual behavior, a belief to be confirmed or refuted by more observation, as any other belief in a fact is to be tried out. Miller (**26**) questions the correctness of this view. Con-

sciousness, to him, appears to be a "field," or at least "the relation of conjunction between the components of the field." "It is these pools of conjoint phenomenality that Mr. Singer completely ignores." Joseph (20) objects to the prevalent psychological manner of treating the soul or mind mechanically. "I do not say that we cannot to some extent assign the conditions psychical or physical under which [thinking and knowing] occur in the individual mind. . . . But such observations do nothing to explain the process; the whole process still remains, as something which has an intelligible nature of its own, not mechanical." Cotlarciuc (10) holds the view of the soul as a bearer of its qualities. D'Istria (12) recounts the important work of Cabanis in leading French philosophy away from Condillac's view of the self. Bergson (3, 4, 5) repudiates the notion of a substantial ego. The *moi qui dure* is ceaseless change. There is no permanent substrate. Ladd (21) rejects "the distinction between the 'phenomenal ego' and the real mind, if by the former we mean the one subject to which we attribute all the characteristics of doing and suffering that make themselves known as consciousness. . . . This subject of states *is* the reality." Bode (7) passes in review the newer realistic conceptions of consciousness, approving them as a protest against subjectivism and transcendentalism, but discovering in them inherent weaknesses in so far as they aim to be rival doctrines. McGilvary (25) would describe consciousness not as a relation of meaning nor as a way of appropriation of past experiences, but as a "way of being felt together." Dewey (11) maintains that as long as perceptions are "regarded as cases of knowledge, the gate is opened to the idealistic interpretation." They should be conceived as pure natural events. "Knowing is something that happens to things in the natural course of their career, not the sudden introduction of a 'unique' and non-natural type of relation."

On the question of the homogeneity or heterogeneity of the physical and the psychical, Oesterreich (28) takes firm stand for the latter alternative. All attempts, he holds, to treat the psychical processes as complexes of natural processes fail. It is the "I" character of all psychical facts which places the subject-matter of psychology in complete contrast to that of the physical world. Martius (24), although differing from Oesterreich in his view of the nature of consciousness, holds similarly that consciousness is not part of the physical series. Two facts, according to him, substantiate this: the discontinuity of physical and psychical with regard to stimulus and result; the well-nigh mechanical self-sufficiency of certain chains of

psychical processes. Rejecting parallelism as contrary to introspective analysis and as requiring a mass of accessory hypotheses, and the energy theory as employing a concept too narrow to include the psychical, he describes the relation between mind and body as a teleological one, in the sense that the physical world is a means to the realization of the psychical. A teleological view is necessary, he holds, by reason of the abstract one-sidedness of the sciences and the inability of the causal series to explain themselves. Schlegel (**30**), on the contrary, supports the view that consciousness is a form of energy. Henry (**18, 19**) works out in elaborate detail a description of psychical facts in terms of energy. Franken (**15**) approaches the problem from the point of view of the question whether a universal psychology is possible, or whether such psychology must not in fact be merely a physiology of the nervous system. In the course of his negative answer to the latter alternative, he rejects the energy concept as inadequate to express psychological processes; he likewise rejects the identity theory, showing that it is based upon a spatial metaphor—inner and outer. He asks why reality, possessing the aspects inner and outer, might not possess innumerable others. He sees no excuse for parallelism; its fear of a causal interchange, he holds, is due to a confusion of "causality" with "energy." If causality means invariable sequence, interaction (causal relation) need not mean the intrusion of energy from the psychical into the closed world of physical energy. He concludes, holding this sole legitimate meaning of causality, that the physical and psychical are related by way of interaction. The psychical is the principle of organization or equilibrium. Psychical processes are of such a nature, always, that the result is a *total* impression, a higher unity, a kind of equilibrium. Disturbances of this unity call forth processes for the restoration of the original unity or the achievement of a new one. In this sense, the psychical (*i. e.*, the totality or equilibrium principle) is prior to the parts and teleologically related to them. Becher (**2**) likewise finds no incompatibility between psychophysical interaction and the principle of conservation of energy. (1) Every measurement of energy transformations fails of complete agreement with the conservation principle. This discrepancy may actually be due to the intrusion of the psychical. (2) The psychical may itself be a form of energy. (3) In so far as there are even physico-chemical influxes which bespeak no increase or diminution of energy, the same may be true of psychical influxes. Mackenzie (**23**) attempts to remove the difficulty by finding it unnecessary "to assume that the

amount of energy in the physical system is in any way interfered with by the presence of conscious processes. It is enough if we may suppose that its *form* is in some way affected." Cohn (9), on the other hand, rejecting both interactionism and parallelism, regards the physical and the psychical as differently characterized but in fact identical processes of the one world. Singer (32) contents himself with the view that life and consciousness are aspects of a body's behavior from which other aspects may be distinguished, but which may not be regarded as separable. Sichler (31) upholds Wundt's monistic view of body and mind, declaring however that this view was for Wundt a hypothesis solely of heuristic worth. Stout (33), announcing a radical change in his view, maintains, with the new realists, that "what is existentially present in consciousness in sense-perception is matter directly apprehended as it is in itself." Only it is and is thought as being partial and fragmentary. "For thought, it signifies its own continuation and completion in a whole which transcends and includes it." Mitchell (27) holds that consciousness and material processes imply each other with logical necessity, consciousness being the inversion or reciprocal aspect of organic activity, *i. e.*, virtual, in distinction from externalized or real, activity.

On the closely related problem of the relation of life to the bodily processes, Lovejoy (22) attempts to define three possible positions of vitalism: (1) That organisms have unique laws; (2) that these laws cannot be stated in terms of the number and arrangement of the organism's physical components; (3) that there are special forces or agents as causes of these peculiar modes of action. The presumption he holds to be in favor of (2). In any case, the hypothetical "forces" or "causes" would not constitute the basis of an irreducible minimum of vitalism. Briot (8) defends a vitalistic view of biology. Driesch (14) presents a new—a logico-metaphysical—basis for vitalism. Becher (2) shows that the conflict between mechanism and vitalism is one with the conflict between parallelism and interactionism, and holds with the latter pair of alternatives.

Differing considerably from these attempts is the attitude of "interested ignorance" of Yerkes (34). "Instead of working on the presupposition that mind causes body or that body causes mind, we may more profitably admit to ourselves that we do not know whether a causal relation exists between the two sets of phenomena. Thus we should be free to work toward a solution of the problem without the encumbrance of a philosophical system or of prejudicial assump-

tions." Yerkes, like Becher, supports "psychical causality," in so far as, to him, there is as much orderliness in mental as in physical events. "What psychology needs is more extensive and accurate information concerning the sequences of its phenomena. Too long the notion has held sway that psychical events are wayward, uncaused, etc. . . . or that their true causes are not other mental events but bodily events. This last view and no other in my opinion has so retarded the development of real psychological insight and information." Hence he advises the study of (1) the facts of consciousness in their mutual relations; (2) the facts of bodily life in their relations; (3) the correlation of the two series of events.

Becher (2) notes the tacit assumption of many scientists that causality has no place in the psychical sphere, but is present solely in the sphere of the physico-chemical. To this unwarranted assumption, he holds, is largely traceable their unwillingness to permit any manner of psychophysical interaction.

Except for Franken's (15) rather obscure view of the psychical as "equilibrium principle," the one view which departs in a marked manner from the conventional modes of treatment of the problem is that of Bergson (3, 4, 5, 6). The novelty of his view is due to his thought of perception as a means, not to knowledge, but to action. Hence the initial separation ordinarily made between a subjective knower and an objective known is not permitted. Perceptual activity is essentially the activity of an object in and with the world of objects. It differs from other activity solely in degree. All life is reactive. Perceptive life is distinguished simply by a greater power to postpone reaction and by a larger range of reactive possibilities. Matter is the totality of images; perception is a selection from matter, a selection necessitated by motor needs. The reactive organism cannot respond to the total world; its selected world of response therefore is matter transformed into perception. Perception, in this sense, is not a "looking at" a world outside; it is simply a selective mode of activity in and upon the world. "Whereas matter is the whole sum of images, such portions of the latter as are related to the possible actions of my body constitute perception, which is then a selected portion of matter."

Such selective activity, which divides the world into mutually exclusive images, Bergson regards as due to the arrest of the vital impulse. "Matter is . . . an inverse motion which runs counter to the vital impulse, or, what is declared to be the same thing, an interruption of the latter. The creation of matter is a simple arrest of

the action which generates life, just as an interruption of the act of creating a poem spreads it out into sentences and words. As a result we have matter and intellect, always correlatives, which thus are both a checking of the vital impulse, a constrained pause in its spontaneous flow. The tension of duration is relieved, and quality becomes quantity" (13). "Apparently," says Dolson, "not only is the inverse motion equally primitive with that which it opposes, but matter and intellect, though neither is founded upon the other, yet become progressively so adapted to each other, that they sometimes seem like different aspects of the same thing." In his Birmingham address, Bergson casts further light upon the function of matter: "When setting one against the other, we examine consciousness and matter in their mutual reactions, we have the impression that matter plays at first the part of an instrument that cuts it up in order to bring about a greater precision. A thought only becomes precise when it is divided into words"—a process which costs effort. "Now this effort would not have been put forth without matter, which by the unique nature of the persistence it opposes and the unique nature of the docility to which it can be brought, plays at one and the same time the rôle of obstacle and stimulus, causes us to feel our force and also to succeed in intensifying it." Finally he relates consciousness and matter to duration as follows: "Sensation, which is the point at which consciousness touches matter, is . . . the condensation . . . of a history which in itself—in the world of matter—is something infinitely diluted and which occupies enormous periods of what might be called the duration of things. On the one hand, matter subject to necessity, a kind of immense machine, without memory, or at least having only just sufficient memory to bridge the interval between one instant and the next, each of the states of the material world being capable, or almost so, of mathematical deduction from the preceding state, and consequently adding nothing thereto; on the other hand consciousness—that is to say, on the contrary, a force essentially free and essentially memory, a force whose very character is to pile up the past on the past, like a rolling snowball, and at every instant of duration to organize with this past something new which is a real creation. That these two forms of existence, matter and consciousness, have indeed a common origin, seems to me probable. I believe that the first is a reversal of the second, that while consciousness is action that continually creates and multiplies, matter is action which continually unmakes itself and wears out." The view stated in the last sentence is one developed with some poetic power by Auerbach (1).

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CONSCIOUSNESS AND THE UNCONSCIOUS

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Of recent books dealing with the problems of consciousness those by the following authors may be noted. McCabe (16) attempts to synthesize data from a group of related sciences in such a way as to give a history of the development of mind. Consciousness is not present everywhere in the animal series, but first appears when a certain degree of nervous complexity is reached, surely in the mammal, perhaps before. As to the exact moment of its appearance, all proposed criteria are inadequate; the answer must be deferred until we know more of the nervous system than at present.

Fite, in his "Individualism" (8), sets an ethical problem which requires for its solution a theory of consciousness. For the author, the true nature of consciousness is unity in diversity. From the mechanical point of view, the universe shows irreconcilable oppositions, which it is the function of consciousness to resolve through higher syntheses. Just in proportion as action is fully conscious, it harmonizes opposing phases of experience. The relation between the self and the object is always present in consciousness, self- and object-consciousness developing together in the individual.

Oesterreich (23) postulates the existence of a permanent ego as

the principle of unity of conscious contents. The opposition between the self and the object is always given in experience. Feelings form a truer groundwork for personality than do the organic sensations. Various abnormal phenomena are discussed, and the ego is shown to be permanent amid all pathological changes of personality.

Titchener (**30**) rejects the definition of consciousness as "the mind's awareness of its own processes." For him, it is the "sum-total of mental processes occurring *now*, at any given present time."

Miss Calkins (**4**), defining psychology as "the science of the self as conscious," holds that "in being conscious, I am always conscious (even if vaguely conscious), of myself as related either to an object or to that totality of objects which I call my environment."

Recent papers dealing with consciousness approach the subject from both psychological and philosophical points of view. For the psychologists, Judd (**13**) argues that an adequate explanation of human life in biological terms, without use of the concept consciousness, is impossible. Consciousness has "solved the age-long opposition between individual and environment," by literally "taking up the environment into the individual and there remoulding the absorbed environment in conformity to individual needs." The individual thus comes ultimately to live in an inner world with laws of combination differing wholly from those of the outer world.

Weyer (**32**) thinks that psychology needs a unit concept more psychical than that of the physiological reflex arc. The essential characteristic of consciousness is found in "complexity, differentiated in clearness as opposed to sensory intensity." For Pikler (**27**), consciousness arises from purely objective and physical tendencies to repetition. It first appears as the result of resistances aroused by the excitation of opposed tendencies of such a nature. Abolition of resistances between related systems forms the higher levels of consciousness, which give rise to voluntary action. Dodge (**7**) regards consciousness as a form of organization, to which the concept of apperception in Erdmann's sense is the key. It thus shows the same sort of organization as its contents.

The experimental study of Ordahl (**25**) finds both conscious and unconscious factors involved in learning. Associations are fixed and variations crop out unconsciously, consciousness being a "corrective agent." While learning is possible when neither the end nor the fact of learning is conscious, attention gives more marked results. Experiments undertaken to determine whether material present but not conscious was more easily learned later proved inconclusive.

A group of papers deal with special phases of the question. Müller-Freienfels (21) discusses states of consciousness of heightened intensity. He finds them characterized by alterations of the emotive life, and, on the intellectual side, by increased clearness, with a telescoping of the "transitive parts." Levy-Suhl (14) makes the *Einstellung* a general capacity of all organized matter, and points out its importance both in normal and abnormal consciousness. Oesterreich (24) distinguishes three phases of disturbance of function of consciousness, depersonalization, successive alterations of self-consciousness, and splitting of consciousness.

Three papers deal with consciousness under anesthesia. Hill (10) finds the waning of consciousness under chloroform characterized by no sharply marked stages, motor ability being the last to leave, the affective state, pleasant. On recovery, sensory phenomena and emotional tone were reversed, and there was later amnesia for a partially rational period. Walker (31) notes especially a sense of loss of individuality at the beginning of recovery from ether. Jacobson (11), from an experience with nitrous oxide, concludes that higher functions may remain when lower have gone, and that subsequent amnesia may not mean unconsciousness in the patient at the time of operation. The suggestion to remember might be effective here.

Of the philosophical writers, Bawden (2) regards mental phenomena as "vicarious substitutes for physical phenomena when the latter are for any reason inadequate." Mind is but "the machinery by which the content of experience undergoes metamorphosis into a different mode." Behavior is here central.

Bode (3) criticizes the definitions of consciousness offered by the realistic movement. The instrumentalism of Professor Dewey, postulating that consciousness is merely "a name for 'sensations,' 'states of consciousness' or 'psychic elements' which emerge as the results or products of the psychological investigation," with no proper existence elsewhere, offers at least a working program.

Tawney (29) argues that functional psychology has failed to bridge the gap, created by modern science and philosophy, between inner and outer experience. Woodworth's definition of consciousness as relation seems promising. A psychology based on "immediate values" is needed.

McGilvary (18), while expressing his sympathy with relational theories of consciousness, considers that the peculiar sort of relation which constitutes consciousness is neither to be found in the appropriation by the present of past experience, as James would hold, nor

in the meaning relation assumed by Woodbridge. Consciousness, while relational in character, is characterized by "a unique way of togetherness, distinct from all other ways of togetherness," which "must be taken at its face value, neither less nor more." His other paper (17) is a protest against Dewey's identification of consciousness with the "organic releases . . . which are the conditions of awareness." Such a position is hardly distinguishable from that of the realists, and still leaves untouched the whole problem of consciousness.

Miller (19) criticizes Singer's statement that "consciousness is not something inferred from behavior, it is behavior." Consciousness implies a peculiar conjunction of objects in its field at any moment, a sort of togetherness which the realist ignores. Mitchell (20) considers that consciousness and matter imply one another as truly as convexity and concavity. The argument directed against parallelism and based on the denial of such implication thus loses its force.

Recent literature in the field of the "unconscious" or "subconscious" has at least served to emphasize the existing confusion. The earlier symposium on this topic in the *Journal of Abnormal Psychology* appears in book form (22). The article by Hart (9) which is added to the former symposium, distinguishes between marginal, co-conscious, subconscious in the sense of Janet, and the conceptual explanatory construction of Freud. Whether the facts are interpreted in mental or physical terms is of small consequence; the conception of the subconscious itself has the same pragmatic justification as the ether of the physicist.

Abramowski (1), as the result of an experimental study, argues for a subconscious which is a creative stratum, showing various degrees of organization, and the content of which tends either to enter or to recede from consciousness. Patini (26) attempts another classification of observed facts. Consciousness involves awareness of self. The apsychic are twilight states without this criterion. The unconscious is inactive and latent; the subconscious, active, but subliminal. Mackenzie (15) points out the possibility of other interpretations of the facts observed in the Beauchamp case. Chase (5) summarizes critically Freud's theories of the unconscious.

A symposium on the subject at the Geneva conference was opened by Dessoir (6), who would make the subconscious differ from consciousness, not in content, but in a less close organization of its elements. There is no water-tight compartment between the two, the marginal zone being of especial significance in phenomena of dissociation. Janet (12) again expresses his desire to limit the use

of the term "subconscious" to split-off systems which function in diseases of personality. Prince (28) regards the unconscious as inactive memory-dispositions. Co-consciousness is preferred as a term for active processes outside of consciousness. The Freudian conception of the mechanism of the unconscious is criticized in that psychoanalysis shows origins and not actual mechanisms.

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THE SELF IN RECENT PSYCHOLOGY

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Professor Titchener has made a notable contribution (3) to the discussion of the self in psychology by collecting from thirteen graduate students, all of them "trained in introspection" and six of them with "unusually thorough training," answers to the following questions:

I. "'I am always inattentively or attentively conscious of myself.' . . . Is this statement true, as a matter of experience, (*a*) in everyday life, (*b*) in the introspective exercises of the laboratory?" (p. 542).

II. A question calling for a description of self-consciousness made "as definite as possible" (p. 545).

III. A question addressed only to those who had answered I. (*a*) in the negative, pointing out "that this answer implies that self-consciousness is intermittent. Under what circumstances, then, is it likely to appear?" (p. 548).

In reply to the first question, *two* of Titchener's thirteen subjects assert, but "with qualification" that they are always conscious of

self, the "center of material, psychical, social relations" as one of them calls it. *Four* declare that they are conscious of self during laboratory introspection. *All* assert or imply that they are sometimes conscious of self. The descriptions of self-consciousness called for by question II. are summarized in the following rough list:

> "Organic complexes, 12. Visual imagery, 10. Affective processes, 8 (implied in 4 other cases). Kinæsthetic complexes, 8 (probably in other cases merged in organic). Conscious attitudes, 4 (those of responsibility, recognition of ownership of introspections, ownership of experience, and activity in the background of consciousness" (p. 551, slightly condensed).

The "one outstanding result" of the answers to question III. is "that the experience of self is preponderantly a social matter. . . . Next in order comes the unusual or novel situation" (p. 551).

From the answers to question I. Titchener concludes that "self-consciousness is, in many cases, an intermittent and even a rare experience" (p. 550); and he explains the persistence of self-consciousness in the four cases by "the hypothesis of individual difference." With the fairness which characterizes his entire discussion, he none the less admits that "it is possible that the two groups of observers [those who assert and those who deny the persistence of the consciousness of self] may have understood the question differently and are therefore talking of different things." My own reading of the records—which is colored, of course, by previous conclusions precisely opposed to Titchener's—is that the two groups of observers have indeed understood the question differently and that those who answer in the negative deny the persistence, not of self-consciousness as such but of some particular stage or phase of it. The study of the records of introspection seems to me to bear out this conclusion. It is to be regretted that five of the eleven who answered I. (*a*) in the negative and three of the nine who answered I. (*b*) in the negative neglect to supplement their bare "No" by any introspective detail. From the remaining records I quote the following indications of what seems to me a misapprehension of the meaning of self-consciousness:

> "Btm. 'No. In seeing a play I am often another person, portrayed by the actor, and do not realize that I am a spectator until my neighbor speaks'" (p. 542, end).

But self-consciousness is surely present when a man seems to himself "a person" even though "another person." B. is unconscious, in the experience which he describes, of circumstances, of surroundings, of the past, but not of self.

In the following case, that of an observer who changes an origi-

nally affirmative to a negative reply, the consciousness of self is evidently confused with what is merely a common constituent of it:

"Am. 'No. . . . Self-consciousness carried kinæsthetically with possible visual images occurs comparatively seldom'" (p. 544).

But the answers to question II. have made clear that self-consciousness need not always include kinæsthetic and visual imagery.

The other negative experiences are, to say the least, entirely compatible with the hypothesis that those who deny the persistence of self-consciousness confuse "self" with some prominent aspect of it. I am unquestionably more attentively conscious of myself in novel situations and in social relations than in perception and in thought. In fact, the very word "self-consciousness" very commonly means "embarrassment" or "shyness." Thus, these observers when they deny self-consciousness except in experiences of "shame," of "being watched," of "appearing before some personage of importance" may well have overlooked the ever-present self-consciousness precisely because, being always present, it does not draw or hold their attention.

Every psychologist should read for himself these records of introspection with Mr. Titchener's discussion of them.

It would probably be unreasonable to demand that every one of us should read entire two German works, issued late in 1910, which consider, critically and historically, the psychological doctrine of the self. And yet each of them well repays study. In the first of these (1), Dr. Kafka examines contemporary conceptions of the *I* under three headings, "metaphysical," "empirical," and "epistemological" conceptions. He treats Bergmann and Drews as representatives of writers of the first type and Rickert as upholder of the empirical theory. The empirical group is subdivided; Spir and Busse are named as examples of the intellectualistic tendency, Wundt and Münsterberg as voluntarists, Lipps as emotionalist, James and Avenarius as holding the sensationalistic empirical conception, and finally Schubert-Solden and Schuppe as teaching that by "*I*" is meant merely the total content of consciousness. The possibility of such a classification is, of course, open to some question. Kafka himself indicates, in the course of his careful analysis, that Münsterberg, though a voluntarist, does not treat the *I* as content, that Lipps recognizes a real as well as an empirical self, and that James tends sometimes to an epistemological and somtimes to a voluntaristic theory.

Kafka criticizes in great detail the views which he summarizes

under all these heads, and reaches the following results: (1) The conception of the *I* as substance behind phenomena is meaningless; and the arguments adduced for the conception are either invalid or else they establish the existence of an *I* of a different sort. (2) Most "empirical" theories agree in regarding the *I* as content of consciousness (*Bewusstseinsinhalt*) either complete or partial. Theories, whether intellectualistic, voluntaristic, emotionalistic, or sensationalistic, which conceive the *I* as partial content must, one and all, be rejected on the ground that no one of them justifies the conclusion that volitions, feelings or sensations are to be "distinguished from the other psychic phenomena" (p. 109) as constituting the self. It is equally impossible, Kafka continues, to regard the *I* as total content (*Gesamtbewusstseinsinhalt*)—and for two reasons. In the first place, such a hypothesis leaves unacccounted for the contrast actually made between *I* and *not-I*. And, second, the very existence of a content presupposes the existence of that-of-which-it-is-content, and the experienced (*das Erlebniss*) must be experienced (*erlebt*) by some subject (p. 233). But the *I*, or subject, is that whose nature we are discussing. It would be meaningless to call it both subject and object for that would be to do violence to its unity. Or, to parapharse another of Kafka's statements of this difficulty, the content of consciousness is related to its subject, and neither term of a relation can be identical with the other term or with the relation (p. 234 *et al.*). Thus, Kafka reaches the epistemological, or Kantian, conception of an *I* which is subject, not object, of consciousness, which is not "found" or "experienced" but which must be assumed to exist as "necessary common point of relation of all contents combined in the unity of one consciousness" (p. 233). Such an *I*, Kafka says, is perfectly empty, has no predicates, is, indeed, mere relation. To this conclusion, it must be added, Kafka does not himself consistently hold, for in many passages he attributes to the *I* the character of being unique as well as that of being relation (pp. 225, 233 *et al.*).

The difficulties of this conception are obvious. How can one insist that it is necessary to assert the existence not of the merely unexperienced but of that which it is logically impossible to experience? If consciousness-as-content exists and if a content can exist only as content of a subject, or *I* (and Kafka makes both these assertions), then the experiencing self must exist by the same right as the experienced content.

Not merely a solution but an explanation of the origin of this problem of subject-objectivity—the problem which Kafka, as has

been indicated, vainly tries to solve by the Kantian expedient—is offered in Oesterreich's volume (**2**). Part II. of this book[1] is a detailed study of cases of dissociated personality, and concludes that in all these cases the essential unity of the self remains unaffected. Part I. embodies a careful study, comparable with that of Kafka, of the fundamental problem of the nature of the self. Oesterreich's definition of the *I* as "that whose states are the feelings and which in each of us remains ever identical with itself" (p. 8) suggests both the weakness and the strength of his theory. In so far as he conceives the *I* as preëminently or exclusively an emotional *I*, he lays himself open to Kafka's criticism, already summarized, of emotionalistic empiricists—in other words, he shows no adequate reason why the *I* should be described as an emotional, and not also as a thinking and a willing self. But more to be noted than this inadequacy in his doctrine is Oesterreich's teaching that the *I* is directly experienced, not as a substance behind phenomena nor as a mere, abstract "content"—sensation or thought, emotion or volition, or all combined—but as a feeling, willing, perceiving and thinking *I*. Kafka's logical difficulty—that the *I* as subject is related to its content or object and therefore distinct from it—is traced by Oesterreich to the unjustifiable effort to apply the subject-object categories to an experience wholly fundamental to them.

Oesterreich, like Kafka, is to be commended for the thorough and careful way in which he sets forth the views of other psychologists. His exposition and criticism is less systematic, but he quotes where Kafka cites and summarizes, referring to a greater number but treating only a few in detail. Neither author takes adequate account of the contributions by English and American writers to the discussion of their problem.

My present concern being with psychology, I pass over certain recent philosophical discussions of the self and close with the mention of the early chapters of Yerkes's recently issued *Introduction to Psychology* (**4**). They are well worth reading by teachers of psychology for their vigorous suggestion of points of view and of methods. In my opinion, they are written from the standpoint of an implicit "self-psychology." "Each one of us," Professor Yerkes says, "must start in his study of consciousness by looking inward, by observing the self" (p. 15).

[1] A more extended review of the book, by the writer of this notice, appears in the *Philosophical Review*, 1911, **20**, 636–641.

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ANALYSES OF SOME OF THE HIGHER THOUGHT PROCESSES

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Notwithstanding the fact that a few psychologists still regard any attempt to determine the psychic factors involved in such complex processes as behavior and thought as a kind of useless mental gymnastic and the result of such analyses as a sort of "introspective mythology," interest in the psychology of the higher thought processes has continued to increase during the year. In fact the studies made have contributed very materially to the belief, already held by some, that these studies are making an epoch in psychological history and mark a turning point in our psychological interests and methods.

The studies published during the year range all the way from those which attempt to determine the psychic factors involved in such mental processes as conscious attitudes, belief and doubt, meaning and understanding, and the process of abstraction on the one hand, and such complex tasks as determining the psychological processes involved in learning to shoot with a rifle on the other (4), it being suggested by the author of the latter study that a complete psychological history of the learning process involved in becoming an expert marksman was necessary to make the training of the soldier rational and economic. These studies are all interesting and important not merely because of the specific results obtained, but because of the bearing which these results have on current psychological discussions and because of the problems and refinements of method which they suggest. Not all of the studies published during the year can be mentioned or reviewed.

Okabe (6) tried to analyze and describe in analytic terms the belief and doubt consciousness, or certainty and uncertainty experience. He presented to experienced observers statements calculated

to arouse belief or disbelief in their validity and "upon the appearance of either type of consciousness the observers closed their eyes and dictated to the experimenter a full account of the consciousness." Single sentences and mathematical expressions were first presented, then sentences arranged for comparison. A summary account of the observers' reports was afterwards submitted to each subject for correction and verification. Many of the conditions under which belief and disbelief arose in consciousness were thus determined. It was found that belief might occur "in terms of a general kinæsthetic attitude, as internal speech and localized kinæsthesis, or as the result of the mental relations of visual images. It might also be bound up with, or incorporated in, a particular consciousness, verbal or visual." "Like intention, assurance, and volition, belief may be bound up with, incorporated in, a sequence of mental processes which proceed under determination, though there is nothing specific in these processes to serve as a vehicle of that meaning. These processes go on in a certain way, under the instructions given, and their going on in that way constitutes them will, recognition or belief." It would have been interesting to determine by a genetic method of observation just how such conscious patterns were actually formed or developed, a procedure which might have thrown much light on the nature and present constitution of the belief consciousness, but this was not done. The author also concludes that the belief-disbelief consciousness is not of common occurrence in everyday life and that it is not necessarily or regularly an emotional consciousness.

Jacobson (3) tried to analyze the consciousness involved in the perception of single letters and the understanding of words and sentences. From his results it appears that meaning is chiefly carried by representative processes, *i. e.*, processes representative of the content of the sentences or words. When these appeared, the sentences or words at once had a meaning, though the meaning sometimes arose when these representative processes seemed to be absent. The meaning tendency does not, however, always rise promptly in consciousness. A word or sentence may be perceived without it and different meanings may be attached to the same objective stimulus. The particular meanings actually attached to his words and sentences were psychological rather than logical. They were in general "partial meanings, particular exemplifications, or what not, touched off under the given instruction by the habit or momentary disposition of the observer." "The same stimulus-sentence gave rise to different

meanings for the same observer so that it was not enought for him to say that he understood it; he must be asked to specify precisely what he understood."

Moore (5) attempted to determine experimentally the mental processes involved in abstraction. He sought to discover how general ideas actually formed and developed in a given case. His method consisted of presenting to his subjects a series of geometrical figures so drawn and arranged that a common element constantly recurred in each group of figures while the other figures of the group were constantly varied. As soon as the common element was discovered the exposure apparatus was stopped and the subject required, on the basis of his introspective analysis, to state how the common element in the group had been isolated and perceived. He tried by this means to determine: (1) How the group of figures containing the common element was actually broken up and the common element selected; (2) how the process of perceiving or apprehending the common element actually took place; (3) how it was held in mind until recognized as having occurred before; (4) how this state of recognitive certainty was formed or developed. The analyses of these several steps were not, however, carried to the point of detailed certainty because of failure to make the observations sufficiently detailed and directed. Perhaps the most significant conclusion arrived at in the study is that the final recognition of the common element depended upon appropriate mental categories which represented compound psychical processes entirely distinct and different from imaginal processes or feelings. These mental categories were acquired through the past experience of the subjects and were aroused in this case by the sensations set up by the common element. The fact that these mental categories were not more minutely and carefully observed and described and their true nature or constitution determined, keeps the study from making an important contribution to the psychology of imageless thought. So far as the author's analyses go they support the contention that non-imaginal processes exist.

Two studies on Conscious Attitudes have appeared. Miss Clarke (2) sought to arouse conscious situations in which various attitudes would be likely to become operative. Single letters, written in blind point style, were given to her subjects to be perceived tactually and the observers instructed "to give complete introspections." The time required to recognize the letters was taken but no use was made of this reaction time in the treatment of results. A list of all the attitudes noted by the observers is given and each attitude briefly

described. The attitudes which often recurred in the course of the experiment, surprise, uncertainty, hesitation, doubt, etc., were analyzed in detail. A few attitudes recurred often enough to enable the experimenter to determine, in part, their development or genetic history from the observers' introspective accounts. Woodworth's method of studying the relational consciousness was repeated, in part, with the result that all the relational processes observed by Miss Clarke's subjects were carried in imaginal terms. Her results did not fit Woodworth's four ways of perceiving relations. His fourth class, where "the relation was present in consciousness but not analyzable into sensory or affective terms" was not paralleled. Miss Clarke, therefore, concludes, on the basis of the attitudes described in her experiments, which she believes to be fairly representative, "that all conscious attitudes can be analyzed into sensations, images and feelings, or traced genetically to such analyzable complexes; that the conscious attitudes do not warrant the assumption of an additional conscious element."

The most suggestive section of the study is the part dealing with the genesis and development of these attitudes. "The introspections of any one observer show," she says, "different stages of clearness and intensity of imagery, which allow us to connect, by graded series of intermediate steps, a complex of vivid and explicit imagery with a vague and condensed consciousness which we suppose to represent what is called imageless thought." A number of attitudes were shown to be capable of actual development, by a process of change through mechanization, ranging from states which were clearly complex and rich in imagery to a state of vague and condensed consciousness, reached by a dropping out of the former imaginal content.

Her conclusions, therefore, verify the results and conclusions reached by Book in his study of the "Genesis and Development of Conscious Attitudes" reported some four months before (1). He showed, by tracing the development of certain specific attitudes in the same mind, that the attitudes developed in his experiments were in reality the developed form of certain specific imaginal processes present in earlier stages of his experiment; that the specific attitudes which guided the fingers and hands in manipulating a typewriter in the expert stages of skill were in reality the developed forms of certain clear and definite imaginal processes used to guide the fingers and hands in the earlier stages of the learning. Every step or stage in this process was here followed in the same mind and the develop-

ment traced from a stage of vivid imagery to a point where the conscious processes used to direct the fingers and hands became free from all imaginal elements. It was also determined that there was a marked tendency, as this expert stage was approached, to revert to the former type of conscious direction and control of the fingers and hands, whenever particular difficulties occurred or when fatigue set in. There was a continual slipping back into a method of control where the consciousness involved was rich in representative processes which promptly disappeared again when the higher method of control was used. The fact that the exact nature and final constitution of the attitudes formed in these experiments were not more minutely described is due to the fact that the results were incidentally obtained in an experiment made for an entirely different purpose.

These studies of conscious attitudes, like the attempted analyses of the other thought processes mentioned above, therefore, suggest some important refinements in our methods of psychological observation. A genetic method of observation must be used whereby these thought processes may be observed at all stages of their formation and development so that any change or changes which may occur in these conscious states from stage to stage, as mechanization takes place, may be accurately determined and described. Furthermore, the observations must be more sharply directed and the cross-section analyses repeated often enough for the true nature and constitution of the processes studied to be determined. Such a method of determining the facts would doubtless reveal the true nature and constitution of these higher thought processes and settle some or all of the current disputes about imageless thought and conscious elements. These studies clearly indicate the need of much careful and patient experimental work and the necessity of carefully refining and modifying our introspective methods.

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TERMINOLOGY

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Dunlap (1) suggests a uniform system of compound words for the various sensations. The Greek roots are recommended, with prefixes a-, para-, hypo-, hyper-, and the suffixes -meter, -ic, modified according to the regular laws of euphony. For example, hearing would be acusia, with the compound forms anacusia, paracusia, hypacusia, hyperacusia, acumeter, and acusic. The system is extended to senses whose Greek names are not in common use, and several other suggestions of form are made, such as myope and chromopsia.

Attention should be called to the new French philosophic vocabulary in course of compilation by the Société française de Philosophie (2), containing a number of psychological definitions. The present installment (No. 13) includes L and M to Métaphysique. We note the words liminal, localisation, signes locaux, ludique (as an adjective for play), marginal, mémoire, mental, and many terms on the border line between philosophy and psychology.

German terminology is represented by a new edition of Kirchner (3), which has been again revised. Little appears to have been done during the past year in the field of psychological terminology.

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BIBLIOGRAPHICAL

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It is interesting to note a movement towards compilation of complete bibliographies of the works of individual writers. The list of William James's writings (4) has been compiled with great care and contains 204 titles. Titchener and Geissler (2) give another supplementary list of the writings of Wundt, completing 1910 and

including a partial list for 1911; three popular articles published 1861–2, and two more recent translations are also included.

Claparède (1) discusses systematic abbreviation of the titles of magazines, and advocates a set of rules for abbreviation in reference work which are nearly identical with those already adopted by the *Psychological Index* and this BULLETIN. The editors of the *Zsch. f. angew. Psychol.* publish (3) a list of abbreviations for magazine titles which are much more condensed. To this plan the objection is raised by Claparède that no ready clue is afforded either to the actual title of the periodical or to the language of publication.

The announcement is made (5) that the annual psychological bibliographies published by the *Zsch. f. Psychol.* and the *Psychol. Index* have adopted a uniform scheme of classification and will in future be practically identical in material and arrangement, the chief point of difference being in the language of the section headings.

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DREAMS

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In spite of the fact that much is written on dream states their psychology is still in deep obscurity. Dr. P. Meunier (10) advances the view that dreams occur during transitional states from waking to sleep or from sleep to waking. Dreams are a form of hypnagogic states. In this respect he agrees with Sidis (17) that dreams occur mostly in the hypnoidal state which is the transitional state between waking and sleeping. Dreams which do not occur during the intermediary state Meunier regards as abnormal. The causation he ascribes to mental disturbances and to external and internal stimulations. The pathological dream is of cœnesthetic character and points to a diseased organ. The dream may thus be utilized for clinical

purposes. In his larger work Meunier (11) maintains the same thesis. Dreams are of the character of hypnagogic hallucinations. An hallucination is an isolated fact or percept, the dream is a continuous whole, an episode, a drama. A large part of the work is devoted to an interesting clinical study of dream consciousness.

Dr. Bernard Leroy (9) in his study of dreams comes to the conclusion that the final stimulus which causes awakening is not identical with the original stimulus which causes the dream. The original sensory stimulus is forgotten in the total memory of the dream episode.

An excellent work carried out for a number of years in a true experimental scientific way is that on dreams by Professor J. Mourly Vold (19). The main thesis is that dreams are brought about by the positions of the bodily organs during sleep and in general by kinæsthetic sensations. This is the best scientific study of dreams that has thus far appeared on the subject of dream consciousness. The work should be closely studied by those who wish to undertake an investigation of the psychology of dreams.

Dr. Edmond Cramaussel (2) studies variations of sleep of an infant by observing the modifications of respirations.

Dr. Waterman (20) makes a short study of dreams as a cause of various symptoms in psychopathic maladies. He finds, as many psychopathologists have shown before him, that dreams may give rise to psychopathic disturbances. The dreams themselves are based on experiences of waking life. This corroborates the work in psychopathology carried out by Janet, Prince and Sidis. What is questionable is the symbolism of the dreams under investigation.

Havelock Ellis (3) gives a popular account of dream life. Dr. Ellis accepts the division of dreams into two groups, presentative and representative. The presentative group may be subdivided into two subgroups, "according as they refer to external stimuli present to the senses or to internal disturbances within the organism. The representative group falls into two subdivisions according as the memories are of old or of recent date." He also is of the opinion, now current, that "the internal or external stimuli which act upon sleeping consciousness are not part of that consciousness, nor in any real sense its source or its cause." Representative elements, memory images, constitute the content, the make-up of dream consciousness. Inattention, lack of mental synthesis, disturbance of apperception, emotion, dissociation, fatigue are the factors of dream life. The theory advanced can be put in a nutshell: Sensations and perceptions

(under perceptions Ellis also includes memory images, ideas or what he prefers to describe as "internally aroused perceptions—memories") "are not properly *apperceived*" (Ellis's italics). This generalization gives rise to a speculative theory on paramnesia. In discussing dream symbolism he tells dogmatically that "there can be no manner of doubt that our dreams are full of symbolism." Under the comprehensive term of symbolism he includes language, music, art, the phenomena of synæsthesia, the theory of perception and hallucination in regard to the nature of secondary sensory elements, in fact all forms of association of elements of one sense with those of another.

The psychoanalytic school is specially prolific in the number of articles on dreams. The quantity unfortunately predominates. Dr. Ernest Jones (**6, 7**), an earnest follower of the school, gives a *résumé* of Freud's work on dreams (**4**). There is a latent content and there is a manifest content and four mechanisms: condensation, displacement, dramatization and secondary elaboration. Consciousness acts as the censor that suppresses and alters the latent content. The groundwork of every dream is infantile and sexual and is of high personal significance. Dream analysis helps to penetrate into the depths of the unconscious. The biological function of the dream is to lull consciousness to sleep like a nurse telling a story to a child to make it go to sleep. "When however the activity of the endopsychic censor is insufficient to keep back or alter materially the thoughts of the latent content, then we have a nightmare." To get at the symbolic meaning of the latent content is supposed to be the task of psychoanalysis. The paper is illustrated by a few short examples.

Dr. Alfred Rubitsek (**16**) analyzes Egmont's dream. Symbolism characteristic of decadent thought and the stronghold of Freud's psychoanalytic method is naively employed as is the case with all adherents of the school. The symbolism reminds one of the mediæval symbolic interpretation of the Holy Scriptures. Freud's writings form the psychoanalytic Bible and are quoted with reverence and piety.

Dr. Otto Rank (**14**) makes a long psychoanalytic study of a girl's dreams, with notes and footnotes, along Freud's lines. The interpretation is ingenious and full of that rank, sexual, artificial symbolism for which the school is so notorious. The painstaking studies, the loyalty, the devotion to the master's great discoveries are worthy of a better cause and remind one of the disciples of Mrs. Mary Baker Eddy. Dr. Rank (**15**) also discusses a couple of dreams which he traces to an "incest-complex"—Eifersucht auf die Mutter und Zärtlichkeit gegen den Vater.

Dr. Sig. Freud (5) gives a few examples of interpretation of dream symbols in a few of his cases. The interpretation is full of Talmudic casuistry in regard to the sexual meaning of certain dream visions.

Dr. Alfred Adler (1) gives the analysis of a false dream of one of his female patients as an illustration of the mechanism of deception in neurosis. The psychoanalysis, as usual with the Freudist, discloses sexual experiences, "psychic hermaphroditism," as the basis of the neurosis.

Dr. Morton Prince (12) in his investigation of dreams does not find any of the elaborate machinery claimed by the psychoanalytic school. Prince finds that in his cases symbolism plays an important rôle. He finds that dream material is derived from a variety of conserved memories and from ideas phantasmagorically running through the mind during the presleeping state. In this he agrees with Meunier and Sidis as to the relation of the hypnagogic and hypnoidal states to the content and mechanism of dreams. Prince lays stress on subconscious motives round which the dream activity plays symbolically. Dr. Prince, however, unlike the Freudists, insists that this symbolism and motivization are present only in some special cases. Dr. Prince is very careful not to make sweeping generalizations and as such his study is important both from psychological and psychopathological standpoints.

Dr. E. Jones (7) sharply criticizes Dr. Prince's work for calling in vain the name of the master's method. To which Prince (13) rightly replies that it makes no difference what the name of the method is provided the method is correct, the facts are true and the work is well done.

Dr. C. G. Jung (8) undertakes in a patronizing way to give what he regards as the real psychoanalysis of Prince's dream cases which Yung claims have been inefficiently, insufficiently and inadequately studied by Prince. Yung's psychoanalysis is full of unconscious sexual humor. Dr. Stekel (18), who is understood to have used psychoanalysis on tens of thousands of dreams and whose name may be regarded as a symbol characteristic of his own psychoanalysis, presents a short communication of a dream study which as to mechanism, symbolism and cabalistic interpretation well illustrates the elaborate artificiality of Freudian dream psychology and ingenious triviality of symbolic sexual psychoanalysis.

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NOTES AND NEWS

At the recent meeting of the American Psychological Association at Washington, D. C., Professor E. L. Thorndike (Teachers College) was elected president for the coming year. Professor W. V. Bingham continues as secretary-treasurer.

The Southern Society for Philosophy and Psychology has elected the following officers for the year 1911: President, Professor R. M. Ogden (Tennessee); vice-president, President H. J. Pearce (Brenau); secretary-treasurer, Professor W. C. Ruediger (George Washington).

The American Philosophical Association has elected Professor Frank Thilly (Cornell) president and Professor Norman K. Smith (Princeton) vice-president. Professor E. G. Spaulding continues as secretary.